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Primary Forest Products Industry and Timber Use, Indiana, 1980

James E. Blyth, Donald H. McGuire, and W. Brad Smith

North Central Forest Experiment Station
Forest Service—U.S. Department of Agriculture
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St. Paul, Minnesota 55108
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FOREWORD

This bulletin contains the results of a detailed study of forest industry, industrial roundwood production, and associated primary mill wood and bark residue in Indiana in 1980. Such detailed information is necessary for intelligent planning and decision-making in wood procurement, forest resource management, and forest industry development. Likewise, researchers need current forest industry and industrial roundwood information for planning projects.

Special thanks are given to the primary wood-using firms that supplied information for this study. Their cooperation is greatly appreciated.

Quantities shown may vary slightly from one table to another because of rounding differences, but these differences are insignificant.

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PRIMARY FOREST PRODUCTS INDUSTRY AND TIMBER USE, INDIANA, 1980

James E. Blyth, *Principal Market Analyst,*
Donald H. McGuire, *Utilization and Marketing Forester,*
Indiana Department of Natural Resources,
Indianapolis, Indiana,
and **W. Brad Smith,** *Mensurationist*
St. Paul, Minnesota

HIGHLIGHTS

- Industrial roundwood production in 1980 was at least 20 percent higher in each Inventory Unit than in 1966.
- Red and white oak, the leading species harvested, furnished 46 percent of the industrial roundwood.
- Indiana mills required 7 percent more industrial roundwood than Indiana forests supplied in 1980, indicating a moderate dependency on imported logs and bolts.
- On a sustained yield basis, sweetgum, basswood, and beech appear to have been overutilized in 1980; soft maple, sycamore, and aspen seem to have been underutilized.
- Saw-log production, 89 percent of all industrial roundwood, was 348 million board feet, up 48 percent from 1971.
- Major saw-log species were red oak, white oak, yellow-poplar, hickory, hard maple, and ash.
- Indiana produced 178,000 cords of pulpwood in 1980, the third largest output. However, only 40,000 cords were from roundwood; the remainder was from wood residue generated at Indiana wood-using mills.
- Indiana mills received 85 percent of the 10.7 million board feet of Indiana veneer logs cut; another 18.3 million board feet were imported.
- Coarse mill residue is in strong demand for pulp manufacturing and fuelwood; only 6 percent was not used in 1980.
- Great progress has been made since 1971 in finding markets for residue. Nevertheless, additional markets for fine and bark residue generated at primary mills are needed as more than one-fourth of the residue in each class was not used in 1980.

PRIMARY FOREST INDUSTRY—INDUSTRIAL ROUNDWOOD

Indiana's primary wood-using industry is dominated by sawmills—of 367 active primary mills operating in 1980, an estimated 334 were sawmills. The active (operating) mill population declined from 518 in 1966. Most of the mill losses were small sawmills cutting less than one-half million board feet of lumber annually. Since 1966 the number of large and medium sawmills increased by 17. Large and medium-size sawmills are dispersed throughout Indiana with the heaviest concentration in the Knobs Unit (fig. 1).

Log and bolt receipts at active mills were 72.7 million cubic feet, up 35 percent from 1966. Compared to the previous 4 years, national markets in 1980 were weak for pallets, railroad ties, furniture, and construction materials and off slightly for paper and paperboard. Consequently, log and bolt receipts in Indiana may have been higher in recent years (1976-1979) than in 1980. Indiana received 7 percent more industrial roundwood for processing than it produced in 1980, indicating a moderate dependency on imported logs and bolts.

Industrial roundwood production in 1980 doubled since 1966 in the Knobs Unit and rose significantly in the other Units:

Unit	Production		
	1966	1980	Change
	(Thousand cubic feet)		(Percent)
Lower Wabash	11,153	14,509	+30
Knobs	14,099	28,504	+102
Upland Flats	4,866	6,748	+39
Northern	15,096	18,056	+20
Total	45,214	67,817	+50

Log production doubled in the Knobs Unit because several sawmills in that area expanded and modernized their operations and several new high-production mills began operating in this Unit since 1966.

Red oak dominated the 1980 Indiana roundwood harvest by providing more than twice as much volume as white oak, the second leading species. Together, the oaks furnished 46 percent of the volume harvested in Indiana. Other major species cut included yellow-poplar, hard maple, hickory, and ash.

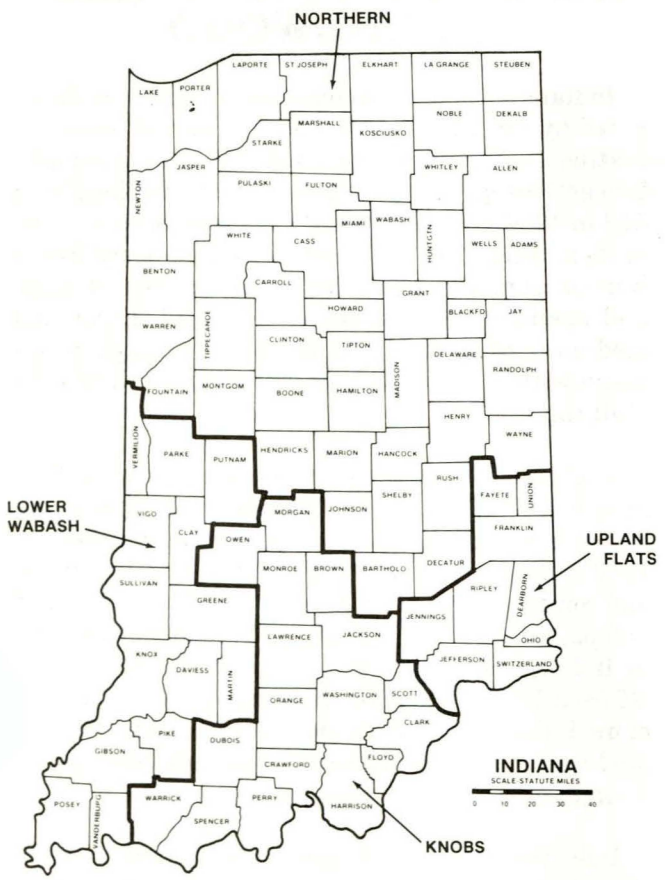

Figure 1.—*Inventory Units in Indiana. Inventory Units are the geographical areas used by the Resources Evaluation Project to report periodic inventories and use of the Nation's forest resources.*

TIMBER REMOVALS FOR INDUSTRIAL ROUNDWOOD

Estimated timber removals (from growing stock on commercial forest land) were 72.4 million cubic feet. Timber removals in each inventory unit per thousand acres of commercial forest land[1] were:

Unit	Removals/thousand acres	
	(Cubic feet)	(Cords)
Lower Wabash	18,630	236
Knobs	17,046	216
Upland Flats	20,396	258
Northern	20,775	263
All Units	18,587	235

Although the heaviest cutting of growing stock (on a commercial forest area basis) was in the Northern Unit, all the Units were close in harvest intensity.

Timber removals in 1980 by species were compared with net annual growth determined during the previous Indiana forest inventory (1966). These comparisons show in a rough way which species may have been overcut or undercut in 1980 (in terms of sustained yield). Species with removals greater than 110 percent of net annual growth or less than 75 percent of growth were:

Species	Removals
	(Percent of net annual growth)
Sweetgum	161
Basswood	160
Beech	132
Red oak	117
Elm	114
Hickory	74
Ash	61
Blackgum	60
Walnut	58
Soft maple	52
Sycamore	51
Aspen	4

These indicators of possible overutilization or underutilization should be used cautiously because (1) wood procurement volumes change from year to year, (2) net annual growth used in the comparison was for 1966, (3) sampling errors may be high for individual minor species because only 30 percent of the sawmills were sampled, (4) stand-age structure may

[1]*Area of commercial forest land in 1967 at the time of the last forest inventory in Indiana.*

mask the extent of under- or overutilization, and (5) apparent overcutting or undercutting may be a temporary timber management strategy to improve stand structure and species mix.

Allowing for these cautions, sweetgum, basswood, and beech appear to have been overcut and soft maple, sycamore, and aspen seem to have been undercut in 1980.

SAW LOGS

Saw logs comprised 80 percent of the industrial roundwood harvest in 1980. Loggers cut 348 million board feet of saw logs in Indiana, up 48 percent from the last saw-log production study in 1971. More than 99 percent was hardwood. Major species harvested were red oak, white oak, yellow-poplar, hickory, hard maple, and ash.

Only 5 million board feet were shipped out-of-State, primarily to Kentucky and Missouri. White oak was the major export species.

Species showing production increases of more than 15 million board feet each compared to 1971 included red oak, white oak, and yellow-poplar. Species with harvests of 5 million board feet or more each in 1980 with production gains of 75 percent or more from 1971 included white oak, yellow-poplar, hickory and black cherry. Production dropped a million board feet from 1971 for each of three species—soft maple, cottonwood, and sweetgum.

More than half the hickory and nearly half the red oak was cut in the Knobs Unit, the leading saw-log producing region. The Northern Unit was the major supplier of black walnut saw logs.

Indiana sawmills imported 21 million board feet of saw logs from 15 States but primarily from Illinois, Michigan, and Kentucky. Eleven States supplied one-third of the walnut log volume processed at Indiana sawmills. Mills in the Lower Wabash and Northern Units received most of the imports.

PULPWOOD

Indiana produced 178,000 cords of pulpwood, exceeded only by the output in 1978 and 1979. Seventy-seven of every 100 cords (138,000 cords) was residue from sawmills, veneer mills, and other mills; the remainder (40,000 cords) was roundwood, including 2,000 cords of whole-tree chips. During the 1960's, Indiana roundwood was cut for pulpwood at twice the current rate.

Before 1965, Indiana residue was not used in manufacturing pulp. Since 1968, Indiana residue use grew rapidly and has been the dominant source of Indiana pulpwood since 1973. Softwoods are a nominal part of the pulpwood mix.

Most of the pulpwood was harvested in the Knobs and Lower Wabash Units. Ten pulpmills in Indiana, Illinois, Michigan, Ohio, Kentucky, and Tennessee received Indiana pulpwood (from roundwood and residue) in 1980.

VENEER LOGS

Nearly half (47 percent) of the 10.7 million board feet[2] of Indiana veneer logs cut in 1980 was white oak. Output declined from 15.0 million board feet in 1976. Compared with 1976, declines were concentrated heavily in walnut. Production gains were not made in any important veneer species. Indiana veneer mills received 85 percent of the harvest; Ohio, Kentucky, Missouri, West Virginia, and Canada received the rest. Again, white oak was the chief export to other States. White oak production more than tripled in the last 10 to 15 years while walnut output fell to less than one-third the level of 1965-1970.

Sixteen Indiana veneer mills consumed 27.4 million board feet of logs and bolts. Two-thirds of the volume was imported, chiefly from Ohio, Illinois, and Kentucky. Other States each contributing more than a million board feet included Pennsylvania, Michigan, Iowa, and Oklahoma.

Principal species processed in Indiana were white and red oak, walnut, and pecan. Highest demand for imports was for white oak, red oak, and walnut. Oklahoma was the primary source of pecan. Illinois and Iowa were large suppliers of walnut to Indiana mills. Pennsylvania furnished nine-tenths of the black cherry used in Indiana.

OTHER PRODUCTS

Other industrial roundwood products (4 percent of all industrial roundwood) cut in Indiana in 1980 were cooperage logs, handle bolts, piling, cabin logs, and shavings bolts (used primarily for poultry litter). Cooperage log production (all white oak) was 8.2

[2]*Does not include log exports to other countries, except Canada.*

million board feet. Nearly three-fifths was cut in the Knobs Unit. Handle bolts (8.5 million board feet) were mainly ash followed by hickory and hard maple. All Units, except the Upland Flats, were important handle bolt producers.

PRIMARY MILL RESIDUE

During 1980, Indiana primary wood-using mills (except the pulpmills) generated 532,000 green tons of coarse residue, 349,000 green tons of fine residue, and 229,000 green tons of bark. Much of this residue was used: 94 percent of the coarse, 72 percent of the fine, and 73 percent of the bark. Pulpmills and households requiring fuelwood used 85 percent of the coarse residue. Primary uses for fine residue are for industrial fuel, soil conditioners, mulch, livestock bedding, and poultry litter.

Sawmills generated 85 to 90 percent of the residue. Great progress has been made since 1971 in finding markets for residue. For sawmills in 1971, residue use included only 70 percent of the coarse, 56 percent of the fine, and 30 percent of the bark.

Finding markets for residue is usually not a problem for larger mills. Unused residue is most likely to be found at smaller mills and some medium-sized mills where residue storage may not be a problem and the volume available may be insufficient to attract customers requiring large quantities. Unused residue is often piled, used for landfill, or burned as waste.

Customers looking for unused residue will find the most in the Knobs and Lower Wabash Units. Another good source is the Upland Flats Unit where more than half the fine and bark residue was not used.

OUTLOOK

Industrial roundwood harvesting is likely to grow when economic activity turns up. Sawmills will continue to dominate Indiana forest industry. The number of large sawmills will likely increase as the number of small sawmills declines. As a result, lumber output per mill will continue to rise. Veneer mills will presumably continue to procure three-fifths to three-quarters of their log requirements from out-of-State.

Additional market outlets should become available for fine residue and bark. If current trends continue, 85 percent or more of these residues will be used by 1987.

APPENDIX

STUDY METHODS

Data for this publication came from canvassing with a formal questionnaire some of the sawmills and all of the other primary wood-using mills that use Indiana logs and bolts. All canvassing in Indiana (except one pulpmill) was initially done by mail by the Indiana Division of Forestry (IDF); follow-up on nonrespondents was by mail, telephone, and personal contact. For a few Indiana mills that did not furnish complete data, IDF utilization and marketing specialists provided estimates based on prior knowledge and contacts. The North Central Forest Experiment Station (using formal questionnaires) contacted by mail an Indiana pulpmill and all out-of-State mills using Indiana roundwood; follow-up on nonrespondents was by mail and telephone. The Station edited and compiled the data.

Indiana sawmills were stratified into five production size-classes. Using a random start for a stratum, sample mills were selected within an Inventory Unit, and selection continued within each succeeding Inventory Unit until the sample was complete for that stratum. This procedure was repeated for each stratum.

The sample sizes for each stratum were:

Size-class	Sample-size
(Thousand board feet/year)	(Mills)
2000 +	All
1000-1999	1 out of 2
500-999	1 out of 5
100-499	1 out of 10
less than 100	1 out of 10

About 30 percent of all Indiana sawmills were canvassed.

Logging utilization factors developed from studies in Michigan in 1977-1978 and 1964-1965, Missouri in 1971-1972, and Indiana in 1966 were used to estimate growing stock and sawtimber removals for industrial roundwood in 1980.

SAMPLING ERROR

Saw Logs

All the reported figures are estimates based on the sawmill sampling procedures described above that are designed to give accurate estimates of saw log production. A measure of reliabiity of these figures is given by sampling errors. This sampling error means that the chances are two out of three that the results for the sample differ by no more than the amount indicated from the results that would have been obtained if a 100 percent sample of sawmills had been made. Sampling error for the saw log production was ± 1.32 percent on a volume of 348,240,000 board feet.

Other Products

Because all other primary wood-using mills (than sawmills) were canvassed, there is no sampling error for the roundwood products they use.

DEFINITION OF TERMS

Timber removals for industrial roundwood.—The volume of sound bole wood (between a 1-foot stump and a minimum top diameter of 4.0 inches outside bark or to a point where the central stem breaks into limbs) in poletimber and sawtimber growing-stock trees on commercial forest land removed annually for industrial roundwood products (including logging residues).

Sawtimber removals for industrial roundwood.—The volume of sound bole wood (between a 1-foot stump and the point on the bole above which a saw log cannot be produced) in sawtimber growing-stock trees on commercial forest land removed annually for industrial roundwood products (including logging residues). The minimum saw log top is 7.0 inches diameter outside bark for softwoods and 9.0 inches diameter outside bark for hardwoods.

Commercial forest land.—Forest land that is producing or capable of producing crops of industrial wood and not withdrawn from timber utilization by statute or administrative regulation. Generally, this includes areas suitable for growing crops of industrial wood in excess of 20 cubic feet per acre annually.

Industrial roundwood products.—Saw logs, pulpwood, veneer logs, poles, commercial posts, piling, particleboard bolts, shaving bolts, lath bolts, charcoal bolts, and chips from roundwood.

Industrial roundwood production.—The quantity of industrial roundwood harvested in a geographic area.

Industrial roundwood receipts.—The quantity of industrial roundwood received in a geographic area regardless of the geographic source.

Consumption.—The quantity of a commodity, such as pulpwood, utilized.

Growing-stock trees.—All live poletimber and sawtimber trees of commercial species except rough and rotten trees. Poletimber trees are 5.0 to 8.9 inches d.b.h. for softwoods and 5.0 to 10.9 inches d.b.h. for hardwoods. Softwood sawtimber trees are 9.0 inches d.b.h. or larger; hardwood sawtimber trees are 11.0 inches d.b.h. or larger.

Primary wood-using mill residue.—Wood materials (coarse and fine) and bark not utilized for principal products at manufacturing plants using roundwood. These residues include wood products (byproducts) obtained incidental to production of principal products and wood materials not utilized for some product.

Coarse mill residue.—Wood residue suitable for chipping such as slabs, edgings, and veneer cores.

Fine mill residue.—Wood residue not suitable for chipping such as sawdust and veneer clippings.

COMMON AND SCIENTIFIC NAMES OF TREE SPECIES MENTIONED

SOFTWOODS

Pine

- Shortleaf pine. ..... *Pinus echinata*
- Virginia pine..... *Pinus virginiana*
- Eastern white pine..... *Pinus strobus*
- Red pine ..... *Pinus resinosa*
- Scotch pine ..... *Pinus sylvestris*

Cypress ..... *Taxodium distichum*

Eastern redcedar..... *Juniperus virginiana*

HARDWOODS

White oak

- White oak ..... *Quercus alba*
- Swamp white oak ..... *Quercus bicolor*
- Bur oak..... *Quercus macrocarpa*
- Swamp chestnut oak..... *Quercus michauxii*
- Chinkapin oak ..... *Quercus muehlenbergii*
- Chestnut oak..... *Quercus prinus*
- Post oak ..... *Quercus stellata*

Red oak

- Northern red oak ..... *Quercus rubra*
- Cherrybark oak ..... *Quercus falcata* var. *pagodaefolia*

Shumard oak ..... *Quercus shumardii*
Black oak ..... *Quercus velutina*
Scarlet oak ..... *Quercus coccinea*
Southern red oak ..... *Quercus falcata*
Shingle oak ..... *Quercus imbricaria*
Pin oak ..... *Quercus palustris*
Hickory
Mockernut hickory ..... *Carya tomentosa*
Shagbark hickory ..... *Carya ovata*
Shellbark hickory ..... *Carya laciniosa*
Pecan ..... *Carya illinoensis*
Pignut hickory ..... *Carya glabra*
Bitternut hickory ..... *Carya cordiformis*
Hard maple ..... *Acer saccharum*
Soft maple
Red maple ..... *Acer rubrum*
Silver maple ..... *Acer saccharinum*
Beech ..... *Fagus grandifolia*
Sweetgum ..... *Liquidambar styraciflua*
Blackgum ..... *Nyssa sylvatica* var. *biflora*
Ash
White ash ..... *Fraxinus americana*
Black ash ..... *Fraxinus nigra*
Green ash ..... *Fraxinus pennsylvanica*
Blue ash ..... *Fraxinus quadrangulata*
Cottonwood ..... *Populus deltoides*
Aspen
Bigtooth aspen ..... *Populus grandidentata*
Quaking aspen ..... *Populus tremuloides*
American basswood ..... *Tilia americana*
Yellow-poplar ..... *Liriodendron tulipfera*
Black walnut ..... *Juglans nigra*
Black cherry ..... *Prunus serotina*
Elm
Winged elm ..... *Ulmus alata*
American elm ..... *Ulmus americana*
Siberian elm ..... *Ulmus pumila*
Slippery elm ..... *Ulmus rubra*
Rock elm ..... *Ulmus thomasii*
American sycamore ..... *Platanus occidentalis*
Birch
Yellow birch ..... *Betula alleghaniensis*
River birch ..... *Betula nigra*
Paper birch ..... *Betula papyrifera*
Other hardwoods
Ohio buckeye ..... *Aesculus glabra*
Hackberry ..... *Celtis occidentalis*
Northern catalpa ..... *Catalpa speciosa*
Flowering dogwood ..... *Cornus florida*
Common persimmon ..... *Diospyros virginiana*
Honeylocust ..... *Gleditsia triacanthos*
Kentucky coffeetree ..... *Gymnocladus dioicus*
Butternut ..... *Juglans cinerea*
Osage-orange ..... *Maclura pomifera*
Cucumbertree ..... *Magnolia acuminata*
Black locust ..... *Robinia pseudoacacia*
Black willow ..... *Salix nigra*
Sassafras ..... *Sassafras albidum*
Boxelder ..... *Acer negundo*
Balsam poplar ..... *Populus balsamifera*

TABLE TITLES

Table 1.—Industrial roundwood production by type of product and species in Indiana, 1980.

Table 2.—Number of active primary wood-using mills in Indiana, 1961, 1966, 1971, and 1980.

Table 3.—Industrial roundwood production by species and unit in Indiana, 1980.

Table 4.—Timber removals from growing stock on commercial forest land for industrial roundwood by species and unit in Indiana, 1980.

Table 5.—Timber removals from sawtimber on commercial forest land for industrial roundwood by species and unit in Indiana, 1980.

Table 6.—Saw log production by species in Indiana, 1971 and 1980.

Table 7.—Saw log production by unit, species, and State of destination, Indiana, 1980.

Table 8.—Saw log receipts in Indiana by unit, species, and State of origin, 1980.

Table 9.—Pulpwood production in Indiana by species groups, 1965, 1970, 1975, and 1980.

Table 10.—Pulpwood production by species and unit in Indiana, 1980.

Table 11.—Veneer log production in Indiana by species, 1966, 1970, 1976, and 1980.

Table 12.—Veneer log production by species and State or country of destination, Indiana, 1980.

Table 13.—Veneer log receipts in Indiana by species and State or country of origin, 1980.

Table 14.—Residue produced at primary wood-using mills by type of material, type of use, and unit, Indiana, 1980.

Table.1--Industrial roundwood production by type of product and species in Indiana, 1980

Species	Sawlogs 1/ (MBF)	Sawlogs 2/ (MCF)	Veneer logs 1/ (MBF)	Veneer logs 2/ (MCF)	Pulpwood 3/ (CORDS)	Pulpwood 2/ (MCF)	Handle bolts 1/ (MBF)	Handle bolts 2/ (MCF)	Cooperage logs 1/ (MBF)	Cooperage logs 2/ (MCF)	Other products (MCF)2/	All products (MCF)2/
Softwoods												
Cypress	28	5	0	0	0	0	0	0	0	0	0	5
Pine	268	45	0	0	1400	111	0	0	0	0	5	161
Redcedar	83	15	0	0	0	0	0	0	0	0	0	15
Total	379	65	0	0	1400	111	0	0	0	0	5	181
Hardwoods												
Ash	19,848	3,342	301	40	2,071	163	5,700	917	0	0	1	4,463
Aspen	215	37	0	0	363	27	0	0	0	0	0	64
Basswood	4,997	877	16	2	479	36	0	0	0	0	1	916
Beech	12,053	2,029	40	5	1,771	139	0	0	0	0	0	2,173
Birch	699	117	0	0	0	0	0	0	0	0	0	127
Blackgum	2,521	440	20	3	678	54	0	0	0	0	0	497
Black cherry	4,989	877	44	6	788	64	0	0	0	0	0	947
Cottonwood	12,215	2,146	431	59	828	64	0	0	0	0	114	2,383
Elm	1,743	305	41	6	589	47	0	0	0	0	2	360
Pecan	1,411	236	354	49	0	0	0	0	0	0	0	285
Other hickory	25,229	4,251	0	0	0	0	1,971	318	0	0	13	4,582
Hard maple	25,589	4,153	234	32	3,724	295	831	133	0	0	0	4,613
Soft maple	15,526	2,728	167	23	2,147	170	0	0	0	0	68	2,989
Red oak	119,094	20,904	1,565	214	8,730	692	0	0	0	0	29	21,839
White oak	38,172	6,700	5,034	688	8,962	709	0	0	8,153	1,344	0	9,441
Sweetgum	3,497	614	206	29	965	75	0	0	0	0	13	731
Sycamore	13,916	2,443	213	29	2,960	231	0	0	0	0	21	2,724
Black walnut	9,335	1,431	1,231	174	0	0	0	0	0	0	0	1,605
Yellow poplar	35,473	6,230	825	113	3,819	302	0	0	0	0	7	6,652
Other hardwoods	1,339	234	16	2	0	0	0	0	0	0	9	245
Total	347,861	60,094	10,738	1,474	38,874	3,068	8,502	1,368	8,153	1,344	288	67,636
All species	348,240	60,159	10,738	1,474	40,274	3,179	8,502	1,368	8,153	1,344	293	67,817

1/Thousand board feet, International 1/4-inch rule.

2/Thousand cubic feet.

3/Standard cords.

Table 2.--Number of active primary wood-using mills in Indiana, 1961, 1966, 1971, and 1980

Kind of mill[1]	1961	1966	1971	1980
Sawmills				
Large[2]	3/	86	77	99
Medium[4]	3/	55	52	59
Small	3/	339	256	176
Subtotal[5]	400	480	385	334
Veneer mills	19	21	18	16
Handle plants	7	4	6/	7
Cooperage mills	10	7	6/	6
Pulp mills	3	2	1	1
Other mills [7]	5	4	6/	3
Total	444	518	6/	367

1/ Number of active sawmills estimated in 1980.

2/ Annual lumber production in excess of 1 million board feet.

3/ Data not available by mill size.

4/ Annual lumber production from 1/2 to 1 million board feet.

5/ Sawmill totals for 1961 do not include a number of small sawmills.

6/ Not available.

7/ Includes shavings, cabin log, and excelsior plants.

Table 3.--Industrial roundwood production by species and unit in Indiana, 1980

(In thousand cubic feet)

Species	All Units	Lower Wabash Unit	Knobs Unit	Upland Flats Unit	Northern Unit
SOFTWOODS					
Cypress	5	5	0	0	0
Pine	161	0	38	12	111
Redcedar	15	0	11	0	4
Total	181	5	49	12	115
HARDWOODS					
Ash	4,463	1,089	1,407	480	1,487
Aspen	64	20	30	1	13
Basswood	916	108	173	76	559
Beech	2,173	384	889	295	605
Birch	127	47	64	16	0
Blackgum	497	88	297	78	34
Black cherry	947	109	392	101	345
Cottonwood	2,383	843	411	214	915
Elm	360	93	109	45	113
Pecan	285	194	53	4	34
Other hickory	4,582	880	2,482	515	705
Hard maple	4,613	549	1,744	353	1,967
Soft maple	2,989	1,029	687	316	957
Red oak	21,839	4,457	10,542	1,985	4,855
White oak	9,441	1,509	4,237	907	2,788
Sweetgum	731	162	401	151	17
Sycamore	2,724	774	792	382	776
Black walnut	1,605	273	435	193	704
Yellow-poplar	6,652	1,883	3,252	618	899
Other hardwoods	245	13	58	6	168
Total	67,636	14,504	28,455	6,736	17,941
All species	67,817	14,509	28,504	6,748	18,056

Table 4.--Timber removals from growing stock on commercial forest land for industrial roundwood by species and unit in Indiana, 1980

(In thousand cubic feet)

Species	All Units	Lower Wabash Unit	Knobs Unit	Upland Flats Unit	Northern Unit
SOFTWOODS					
Cypress	6	6	0	0	0
Pine	162	0	39	13	110
Redcedar	16	0	12	0	4
Total	184	6	51	13	114
HARDWOODS					
Ash	5,275	1,309	1,625	569	1,772
Aspen	60	19	28	1	12
Basswood	1,023	119	187	86	631
Beech	2,293	411	926	304	652
Birch	137	50	69	18	0
Blackgum	543	93	322	89	39
Black cherry	1,042	118	426	112	386
Cottonwood	2,669	942	459	242	1,026
Elm	388	98	114	50	126
Pecan	311	209	59	4	39
Other hickory	5,121	1,019	2,785	555	762
Hard maple	5,039	586	1,906	382	2,165
Soft maple	3,308	1,119	761	352	1,076
Red oak	22,338	4,548	10,751	2,020	5,019
White oak	9,744	1,562	4,343	937	2,902
Sweetgum	796	172	437	168	19
Sycamore	2,986	844	837	433	872
Black walnut	1,470	249	399	177	645
Yellow-poplar	7,406	2,091	3,607	695	1,013
Other hardwoods	277	14	66	7	190
Total	72,226	15,572	30,107	7,201	19,346
All species	72,410	15,578	30,158	7,214	19,460

Table 5.--Timber removals from sawtimber on commercial forest land for industrial roundwood by species and unit in Indiana, 1980

(In thousand board feet)[1/]

Species	All Units	Lower Wabash Unit	Knobs Unit	Upland Flats Unit	Northern Unit
SOFTWOODS					
Cypress	27	27	0	0	0
Pine	440	0	216	75	149
Redcedar	79	0	59	0	20
Total	546	27	275	75	169
HARDWOODS					
Ash	26,471	6,453	8,259	2,822	8,937
Aspen	269	91	119	6	53
Basswood	5,233	609	946	439	3,239
Beech	12,516	2,252	5,023	1,641	3,600
Birch	761	272	383	106	0
Blackgum	2,755	464	1,632	453	206
Black cherry	5,324	600	2,167	575	1,982
Cottonwood	13,789	4,882	2,401	1,254	5,252
Elm	1,972	489	577	256	650
Pecan	1,795	1,171	361	31	232
Other hickory	27,330	5,264	14,823	3,061	4,182
Hard maple	27,898	3,268	10,360	1,963	12,307
Soft maple	16,924	5,723	3,892	1,805	5,504
Red oak	115,966	23,539	55,703	10,482	26,242
White oak	51,344	8,203	22,861	5,007	15,273
Sweetgum	4,099	897	2,241	865	96
Sycamore	15,247	4,309	4,215	2,241	4,482
Black walnut	9,300	1,573	2,530	1,119	4,078
Yellow-poplar	38,027	10,688	18,543	3,568	5,228
Other hardwoods	1,435	80	340	40	975
Total	378,455	80,827	157,376	37,734	102,518
All species	379,001	80,854	157,651	37,809	102,687

[1/] International 1/4-inch rule.

Table 6.--Saw log production by species in Indiana, 1971 and 1980

(In thousand board feet)[1/]

Species	1971	1980	Change
SOFTWOODS			
Cypress	0	28	28
Pine	171	268	97
Redcedar	0	83	83
Total	171	379	208
HARDWOODS			
Ash	13,822	19,848	6,026
Aspen	89	215	126
Basswood	3,366	4,997	1,631
Beech	9,097	12,053	2,956
Blackgum	1,279	2,521	1,242
Black cherry	1,618	4,989	3,371
Cottonwood	13,495	12,215	-1,280
Elm	1,493	1,743	250
Pecan (hickory)	702	1,411	709
Other hickory	13,509	25,229	11,720
Hard maple	17,824	25,589	7,765
Soft maple	16,557	15,526	-1,031
Red oak	76,868	119,094	42,226
White oak	20,896	38,172	17,276
Sweetgum	4,566	3,497	-1,069
Sycamore	12,612	13,916	1,304
Black walnut	5,825	9,335	3,510
Yellow-poplar	19,972	35,473	15,501
Other hardwoods	1,621	2,038	417
Total	235,211	347,861	112,650
All species	235,382	348,240	112,858

[1/]International 1/4-inch rule.

Table 7.--Saw log production by unit, species, and state of destination, Indiana, 1980

(In thousand board feet)1/

ALL UNITS

Species	Indiana	Kentucky	Missouri	Ohio	Other States	Total
SOFTWOODS						
Cypress	0	28	0	0	0	28
Pine	268	0	0	0	0	268
Redcedar	62	0	0	21	0	83
Total	330	28	0	21	0	379
HARDWOODS						
Ash	19,793	7	48	0	0	19,848
Aspen	215	0	0	0	0	215
Basswood	4,983	14	0	0	0	4,997
Beech	12,046	0	0	7	0	12,053
Birch	699	0	0	0	0	699
Blackgum	2,521	0	0	0	0	2,521
Black cherry	4,965	0	9	14	1	4,989
Cottonwood	12,208	0	0	7	0	12,215
Elm	1,743	0	0	0	0	1,743
Pecan	1,411	0	0	0	0	1,411
Other hickory	25,186	35	0	7	1	25,229
Hard maple	25,554	35	0	0	0	25,589
Soft maple	15,250	276	0	0	0	15,526
Red oak	117,965	690	425	14	0	119,094
White oak	35,681	959	1531	0	1	38,172
Sweetgum	3,152	345	0	0	0	3,497
Sycamore	13,916	0	0	0	0	13,916
Black walnut	8,889	443	0	0	3	9,335
Yellow poplar	35,465	0	0	7	1	35,473
Other hardwoods	1,339	0	0	0	0	1,339
Total	342,981	2,804	2013	56	7	347,861
All species	343,311	2,832	2013	77	7	348,240

LOWER WABASH UNIT

SOFTWOODS						
Cypress	0	28	0	0	0	28
Pine	0	0	0	0	0	0
Redcedar	0	0	0	0	0	0
Total	0	28	0	0	0	28
HARDWOODS						
Ash	4,437	0	20	0	0	4,457
Aspen	87	0	0	0	0	87
Basswood	562	7	0	0	0	569
Beech	2,224	0	0	0	0	2,224
Birch	225	0	0	0	0	225
Blackgum	401	0	0	0	0	401
Black cherry	554	0	2	0	1	557
Cottonwood	3,924	0	0	0	0	3,924
Elm	420	0	0	0	0	420
Pecan	1,093	0	0	0	0	1,093
Other hickory	4,454	14	0	0	1	4,469
Hard maple	3,090	0	0	0	0	3,090
Soft maple	4,799	0	0	0	0	4,799
Red oak	24,298	0	116	0	0	24,414
White oak	5,514	40	292	0	1	5,847
Sweetgum	570	69	0	0	0	639
Sycamore	3,808	0	0	0	0	3,808
Black walnut	1,544	126	0	0	3	1,673
Yellow poplar	10,045	0	0	0	1	10,046
Other hardwoods	17	0	0	0	0	17
Total	72,066	256	430	0	7	72,759
All species	72,066	284	430	0	7	72,787

(Table 7 continued on next page)

(Table 7 continued)

KNOBS UNIT

Species	Indiana	Kentucky	Missouri	Ohio	Other States	Total
SOFTWOODS						
Cypress	0	0	0	0	0	0
Pine	191	0	0	0	0	191
Redcedar	62	0	0	0	0	62
Total	253	0	0	0	0	253
HARDWOODS						
Ash	2,038	0	0	0	0	2,038
Aspen	0	0	0	0	0	0
Basswood	427	0	0	0	0	427
Beech	1,528	0	0	0	0	1,528
Birch	103	0	0	0	0	103
Blackgum	439	0	0	0	0	439
Black cherry	552	0	0	0	0	552
Cottonwood	1,178	0	0	0	0	1,178
Elm	244	0	0	0	0	244
Pecan	6	0	0	0	0	6
Other hickory	3,037	0	0	0	0	3,037
Hard maple	1,472	0	0	0	0	1,472
Soft maple	1,739	0	0	0	0	1,739
Red oak	10,614	0	0	0	0	10,614
White oak	3,002	18	0	0	0	3,020
Sweetgum	797	0	0	0	0	797
Sycamore	2,128	0	0	0	0	2,128
Black walnut	1,087	17	0	0	0	1,104
Yellow poplar	3,434	0	0	0	0	3,434
Other hardwoods	39	0	0	0	0	39
Total	33,864	35	0	0	0	33,899
All species	33,941	35	0	0	0	33,976

UPLAND FLATS UNIT

Species	Indiana	Kentucky	Missouri	Ohio	Other States	Total
SOFTWOODS						
Cypress	0	0	0	0	0	0
Pine	77	0	0	0	0	77
Redcedar	0	0	0	0	0	0
Total	77	0	0	0	0	77
HARDWOODS						
Ash	6,390	0	28	0	0	6,418
Aspen	88	0	0	0	0	88
Basswood	852	7	0	0	0	859
Beech	4,758	0	0	0	0	4,758
Birch	371	0	0	0	0	371
Blackgum	1,479	0	0	0	0	1,479
Black cherry	1,989	0	7	0	0	1,996
Cottonwood	2,039	0	0	0	0	2,039
Elm	486	0	0	0	0	486
Pecan	174	0	0	0	0	174
Other hickory	13,548	14	0	0	0	13,562
Hard maple	9,147	0	0	0	0	9,147
Soft maple	3,379	276	0	0	0	3,655
Red oak	56,140	690	309	0	0	57,139
White oak	12,730	861	1,239	0	0	14,830
Sweetgum	1,691	276	0	0	0	1,967
Sycamore	3,712	0	0	0	0	3,712
Black walnut	2,233	151	0	0	0	2,384
Yellow poplar	17,051	0	0	0	0	17,051
Other hardwoods	327	0	0	0	0	327
Total	138,584	2,275	1,583	0	0	142,442
All species	138,837	2,275	1,583	0	0	142,695

(Table 7 continued on next page)

(Table 7 continued)

NORTHERN UNIT

Species	Indiana	Kentucky	Missouri	Ohio	Other States	Total
SOFTWOODS						
Cypress	0	0	0	0	0	0
Pine	0	0	0	0	0	0
Redcedar	0	0	0	21	0	21
Total	0	0	0	21	0	21
HARDWOODS						
Ash	6,928	7	0	0	0	6,935
Aspen	40	0	0	0	0	40
Basswood	3,142	0	0	0	0	3,142
Beech	3,536	0	0	7	0	3,543
Birch	0	0	0	0	0	0
Blackgum	202	0	0	0	0	202
Black cherry	1,870	0	0	14	0	1,884
Cottonwood	5,067	0	0	7	0	5,074
Elm	593	0	0	0	0	593
Pecan	138	0	0	0	0	138
Other hickory	4,147	7	0	7	0	4,161
Hard maple	11,845	35	0	0	0	11,880
Soft maple	5,333	0	0	0	0	5,333
Red oak	26,913	0	0	14	0	26,927
White oak	14,435	40	0	0	0	14,475
Sweetgum	94	0	0	0	0	94
Sycamore	4,268	0	0	0	0	4,268
Black walnut	4,025	149	0	0	0	4,174
Yellow poplar	4,935	0	0	7	0	4,942
Other hardwoods	956	0	0	0	0	956
Total	98,467	238	0	56	0	98,761
All species	98,467	238	0	77	0	98,782

1/ International 1/4-inch rule.

Table 8.--Saw log receipts in Indiana by unit species and state of origin, 1980

(In thousand board feet)1/

Species	ALL UNITS									
	All States	Indiana	Illinois	Michigan	Kentucky	Ohio	Iowa	Missouri	Penna.	Other
SOFTWOODS										
Pine	268	268	0	0	0	0	0	0	0	0
Redcedar	62	62	0	0	0	0	0	0	0	0
Total	330	330	0	0	0	0	0	0	0	0
HARDWOODS										
Ash	20,767	19,793	220	454	116	184	0	0	0	0
Aspen	216	215	0	1	0	0	0	0	0	0
Basswood	5,204	4,983	7	167	23	24	0	0	0	0
Beech	12,534	12,046	148	273	28	39	0	0	0	0
Birch	767	699	62	0	6	0	0	0	0	0
Blackgum	2,698	2,521	166	0	11	0	0	0	0	0
Black cherry	5,352	4,965	8	270	71	24	0	0	14	0
Cottonwood	12,329	12,208	90	17	12	2	0	0	0	0
Elm	1,856	1,743	30	38	9	8	0	0	0	28
Pecan	1,448	1,411	18	0	0	0	0	0	0	19
Other hickory	26,462	25,186	807	180	241	41	0	3	0	4
Hard maple	26,749	25,554	93	844	144	114	0	0	0	0
Soft maple	16,998	15,250	982	639	22	105	0	0	0	0
Red oak	124,010	117,965	3,154	1,661	1,000	229	0	0	0	1
White oak	37,318	35,681	335	423	642	198	0	4	21	14
Sweetgum	3,222	3,152	58	0	12	0	0	0	0	0
Sycamore	14,573	13,916	525	73	27	32	0	0	0	0
Black walnut	13,446	8,889	1,560	223	717	457	752	220	149	479
Yellow poplar	36,640	35,465	254	309	596	16	0	0	0	0
Other hardwoods	1,415	1,339	0	40	0	33	0	0	0	3
Total	364,004	342,981	8,517	5,612	3,677	1,506	752	227	184	548
All species	364,334	343,311	8,517	5,612	3,677	1,506	752	227	184	548

(Table 8 continued on next page)

(Table 8 continued)

Species	All States	LOWER WABASH UNIT							
		Indiana	Illinois	Oklahoma	Kentucky	Missouri	Mississippi	Texas	Louisiana
HARDWOODS									
Ash	5,316	5,096	219	0	1	0	0	0	0
Aspen	142	142	0	0	0	0	0	0	0
Basswood	696	689	7	0	0	0	0	0	0
Beech	2,613	2,465	148	0	0	0	0	0	0
Birch	258	196	62	0	0	0	0	0	0
Blackgum	551	385	166	0	0	0	0	0	0
Black cherry	731	723	8	0	0	0	0	0	0
Cottonwood	4,067	3,977	90	0	0	0	0	0	0
Elm	570	512	30	28	0	0	0	0	0
Pecan	1,123	1,093	18	0	0	0	7	4	1
Other hickory	5,722	4,911	807	0	1	3	0	0	0
Hard maple	3,225	3,132	93	0	0	0	0	0	0
Soft maple	5,863	4,881	982	0	0	0	0	0	0
Red oak	25,841	22,686	3,154	0	1	0	0	0	0
White oak	5,587	5,282	297	0	4	4	0	0	0
Sweetgum	596	538	58	0	0	0	0	0	0
Sycamore	3,766	3,241	525	0	0	0	0	0	0
Black walnut	2,198	2,089	105	0	4	0	0	0	0
Yellow poplar	11,324	11,070	254	0	0	0	0	0	0
Other hardwoods	13	13	0	0	0	0	0	0	0
All species	80,202	73,121	7,023	28	11	7	7	4	1

(Table 8 continued on next page)

(Table 8 continued)

Species	All States	KNOBS UNIT						
		Indiana	Kentucky	Illinois	Missouri	Penna.	Oklahoma	Tennessee
SOFTWOODS.								
Pine	268	268	0	0	0	0	0	0
Redcedar	62	62	0	0	0	0	0	0
Total	330	330	0	0	0	0	0	0
HARDWOODS								
Ash	5,770	5,676	94	0	0	0	0	0
Aspen	46	46	0	0	0	0	0	0
Basswood	738	715	23	0	0	0	0	0
Beech	4,394	4,366	28	0	0	0	0	0
Birch	316	310	6	0	0	0	0	0
Blackgum	1,520	1,509	11	0	0	0	0	0
Black cherry	1,845	1,764	67	0	0	14	0	0
Cottonwood	1,939	1,927	12	0	0	0	0	0
Elm	426	418	8	0	0	0	0	0
Pecan	187	180	0	0	0	0	7	0
Other hickory	14,102	13,863	239	0	0	0	0	0
Hard maple	9,447	9,303	144	0	0	0	0	0
Soft maple	3,438	3,416	22	0	0	0	0	0
Red oak	55,937	55,029	908	0	0	0	0	0
White oak	12,584	12,091	470	23	0	0	0	0
Sweetgum	1,761	1,749	12	0	0	0	0	0
Sycamore	4,211	4,184	27	0	0	0	0	0
Black walnut	1,485	1,217	180	49	33	0	0	6
Yellow poplar	16,480	15,885	595	0	0	0	0	0
Other hardwoods	313	313	0	0	0	0	0	0
Total	136,939	133,961	2,846	72	33	14	7	6
All species	137,269	134,291	2,846	72	33	14	7	6

(Table 8 continued on next page)

(Table 8 continued)

Species	All States	Indiana	Kentucky	Ohio	New York	Penna.	W. Virginia	Illinois
				UPLAND FLATS UNIT				
Ash	1,196	1,147	21	28	0	0	0	0
Basswood	205	205	0	0	0	0	0	0
Beech	975	975	0	0	0	0	0	0
Birch	172	172	0	0	0	0	0	0
Blackgum	352	352	0	0	0	0	0	0
Black cherry	497	486	4	7	0	0	0	0
Cottonwood	1,240	1,240	0	0	0	0	0	0
Elm	216	214	1	1	0	0	0	0
Other hickory	1,925	1,921	1	3	0	0	0	0
Hard maple	624	624	0	0	0	0	0	0
Soft maple	916	916	0	0	0	0	0	0
Red oak	7,079	7,006	22	51	0	0	0	0
White oak	1,320	1,300	10	10	0	0	0	0
Sweetgum	603	603	0	0	0	0	0	0
Sycamore	1,872	1,872	0	0	0	0	0	0
Black walnut	2,019	899	436	203	155	149	91	86
Yellow poplar	2,463	2,461	1	1	0	0	0	0
Other hardwoods	42	39	0	0	0	0	3	0
All species	23,716	22,432	496	304	155	149	94	86

(Table 8 continued on next page)

(Table 8 continued)

Species	All States	NORTHERN UNIT								
		Indiana	Michigan	Illinois	Ohio	Iowa	Kentucky	Missouri	Wisconsin	Other
Ash	8,485	7,874	454	1	156	0	0	0	0	0
Aspen	28	27	1	0	0	0	0	0	0	0
Basswood	3,565	3,374	167	0	24	0	0	0	0	0
Beech	4,552	4,240	273	0	39	0	0	0	0	0
Birch	21	21	0	0	0	0	0	0	0	0
Blackgum	275	275	0	0	0	0	0	0	0	0
Black cherry	2,279	1,992	270	0	17	0	0	0	0	0
Cottonwood	5,083	5,064	17	0	2	0	0	0	0	0
Elm	644	599	38	0	7	0	0	0	0	0
Pecan	138	138	0	0	0	0	0	0	0	0
Other hickory	4,713	4,491	180	0	38	0	0	0	4	0
Hard maple	13,453	12,495	844	0	114	0	0	0	0	0
Soft maple	6,781	6,037	639	0	105	0	0	0	0	0
Red oak	35,153	33,244	1,661	0	178	0	69	0	1	0
White oak	17,827	17,008	423	15	188	0	158	0	0	35
Sweetgum	262	262	0	0	0	0	0	0	0	0
Sycamore	4,724	4,619	73	0	32	0	0	0	0	0
Black walnut	7,744	4,684	223	1,320	254	752	97	187	165	62
Yellow poplar	6,373	6,049	309	0	15	0	0	0	0	0
Other hardwoods	1,047	974	40	0	33	0	0	0	0	0
All species	123,147	113,467	5,612	1,336	1,202	752	324	187	170	97

[1/] International 1/4-inch rule.

Table 9.--Pulpwood production in Indiana by species groups, 1965, 1970, 1975, and 1980

(In standard cords, unpeeled)

Species Group	1965	1970	1975	1980
ROUNDWOOD				
Softwoods	655	9	0	1400
Soft hardwoods	46,522	31,367	14,234	13,616
Hard hardwoods	35,000	55,510	23,476	25,258
Total	82,177	86,886	37,710	40,274
RESIDUE				
Softwood	0	0	0	0
Hardwood	3,931	60,904	97,244	137,660
All material	86,108	147,790	134,954	177,934

Table 10.--Pulpwood production by species and Unit in Indiana, 1980

(In standard cords, unpeeled)

Species	All Units	Lower Wabash Unit	Knobs Unit	Upland Flats Unit	Northern Unit
ROUNDWOOD 1/					
Pine	1,400	0	0	0	1,400
Ash	2,071	658	934	356	123
Aspen	363	71	186	27	79
Basswood	479	99	264	17	99
Beech	1,771	114	1,126	480	51
Blackgum	678	198	460	20	0
Black cherry	788	133	487	42	126
Cottonwood	828	244	257	11	316
Elm	589	207	308	13	61
Hard maple	3,724	588	2,074	938	124
Soft maple	2,147	1,261	496	130	260
Red oak	8,730	1,997	5,327	1,143	263
White oak	8,962	1,450	6,141	1,192	179
Sweetgum	965	388	499	78	0
Sycamore	2,960	963	1,741	30	226
Yellow-poplar	3,819	1,270	2,261	134	154
Total	40,274	9,641	22,561	4,611	3,461
RESIDUE					
Softwood	0	0	0	0	0
Hardwood	137,660	2/	2/	2/	2/
All material	177,934	2/	2/	2/	2/

1/ Includes chips from roundwood.

2/ Not available.

Table 11.--Veneer log production in Indiana by species, 1966, 1970, 1976, and 1980

(In thousand board feet)[1/]

Species	1966	1970	1976	1980
Ash	381	177	609	301
Basswood	2	0	15	16
Black cherry	140	76	99	44
Cottonwood	1,129	1,240	668	431
Gum	502	466	386	226
Pecan	732	288	354	354
Hard maple	1,080	483	273	234
Soft maple	36	152	266	167
Red oak	429	124	1,683	1,565
White oak	1,681	1,461	5,428	5,034
Sycamore	565	1,056	525	213
Walnut	6,412	4,294	3,426	1,231
Yellow-poplar	2,469	780	1,242	825
Other hardwoods	205	667	6	97
All species	15,763	11,264	14,980	10,738

[1/]International 1/4-inch rule.

Table 12.--Veneer log production by species and state or country of destination, Indiana, 1980

(In thousand board feet)[1/]

Species	Indiana	Ohio	Kentucky	Missouri	W.Virginia	Canada	Other States	Total
Ash	280	21	0	0	0	0	0	301
Basswood	7	9	0	0	0	0	0	16
Beech	0	40	0	0	0	0	0	40
Blackgum	20	0	0	0	0	0	0	20
Black cherry	20	24	0	0	0	0	0	44
Cottonwood	431	0	0	0	0	0	0	431
Elm	33	8	0	0	0	0	0	41
Pecan	337	11	6	0	0	0	0	354
Hard maple	200	34	0	0	0	0	0	234
Soft maple	167	0	0	0	0	0	0	167
Red oak	1,217	63	285	0	0	0	0	1,565
White oak	4,179	276	127	392	47	13	0	5,034
Sweetgum	206	0	0	0	0	0	0	206
Sycamore	145	68	0	0	0	0	0	213
Black walnut	1,025	108	98	0	0	0	0	1,231
Yellow poplar	825	0	0	0	0	0	0	825
Other hardwoods	16	0	0	0	0	0	0	16
All species	9,108	662	516	392	47	13	0	10,738

[1/]International 1/4-inch rule.

Table 13.--Veneer log receipts in Indiana by species and state or country of origin, 1980

(In thousand board feet)[1/]

Species	All States	Indiana	Ohio	Illinois	Kentucky	Penna.	Michigan	Iowa	Oklahoma	Other
SOFTWOODS										
Pine	373	0	0	0	0	0	0	0	0	373
HARDWOODS										
Ash	500	280	58	113	41	0	8	0	0	0
Basswood	7	7	0	0	0	0	0	0	0	0
Blackgum	26	20	0	0	6	0	0	0	0	0
Black cherry	968	20	12	0	3	884	49	0	0	0
Cottonwood	590	431	0	0	91	0	0	0	0	68
Elm	313	33	5	1	13	0	15	0	0	246
Pecan	3,401	337	36	115	61	0	11	0	1,238	1,603
Hard maple	565	200	34	0	0	68	216	11	0	36
Soft maple	237	167	0	34	36	0	0	0	0	0
Red oak	4,070	1217	487	23	312	482	924	216	0	409
White oak	10,999	4,179	1,992	1,579	1652	143	127	514	0	813
Sweetgum	229	206	0	9	14	0	0	0	0	0
Sycamore	236	145	0	0	91	0	0	0	0	0
Black walnut	3,862	1,025	300	908	343	0	56	562	0	668
Yellow poplar	957	825	97	0	35	0	0	0	0	0
Other hardwoods	59	16	0	25	8	0	0	0	2	8
Total hardwoods	27,019	9,108	3,021	2,807	2,706	1,577	1,406	1,303	1,240	3,851
All species	27,392	9,108	3,021	2,807	2,706	1,577	1,406	1,303	1,240	4,224

[1/]International 1/4-inch rule.

Table 14.--Residue produced at primary wood-using mills by type of material, type of use, and unit, Indiana, 1980

(In thousand tons green weight)

Unit and type of use	Wood residue						Bark3/	
	Total		Coarse 1/		Fine2/			
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
Lower Wabash Unit								
Fiber products	0	95.78	0	93.09	0	2.69	0	2.12
Industrial fuel	0	15.36	0	1.90	0	13.46	0	6.46
Domestic fuel	0	18.70	0	17.06	0	1.64	0	8.67
Miscellaneous 4/	0	34.30	0	1.00	0	33.30	0	17.28
Not used	0	28.30	0	3.88	0	24.42	0	15.48
Total	0	192.44	0	116.93	0	75.51	0	50.01
Knobs Unit								
Fiber products	.14	128.84	.09	126.09	.05	2.75	0	6.45
Industrial fuel	.62	58.53	.24	9.81	.38	48.72	.16	29.26
Domestic fuel	.19	48.74	.18	45.16	.01	3.58	.06	18.34
Miscellaneous 4/	.01	34.82	0	1.35	.01	33.47	0	7.46
Not used	.35	64.62	.16	19.07	.19	45.55	.09	25.79
Total	1.31	335.55	.67	201.48	.64	134.07	.31	87.30
Upland Flats Unit								
Fiber products	0	22.43	0	22.43	0	0	0	.67
Industrial fuel	0	.49	0	0	0	.49	0	.06
Domestic fuel	0	8.60	0	8.60	0	0	0	3.28
Miscellaneous 4/	0	6.84	0	0	0	6.84	0	2.26
Not used	0	20.28	0	4.41	0	15.87	0	8.40
Total	0	58.64	0	35.44	0	23.20	0	14.67
Northern Unit								
Fiber products	0	96.78	0	96.78	0	0	0	0
Industrial fuel	.16	58.76	.06	27.04	.10	31.72	.05	20.28
Domestic fuel	0	47.57	0	46.35	0	1.22	0	13.27
Miscellaneous 4/	0	71.71	0	1.63	0	70.08	0	31.36
Not used	0	17.59	0	5.54	0	12.05	0	11.52
Total	.16	292.41	.06	177.34	.10	115.07	.05	76.43
All Units								
Fiber products	.14	343.83	.09	338.39	.05	5.44	0	9.24
Industrial fuel	.78	133.14	.30	38.75	.48	94.39	.21	56.06
Domestic fuel	.19	123.61	.18	117.17	.01	6.44	.06	43.56
Miscellaneous 4/	.01	147.67	0	3.98	.01	143.69	0	58.36
Not used	.35	130.79	.16	32.90	.19	97.89	.09	61.19
Total	1.47	879.04	.73	531.19	.74	347.85	.36	228.41

1/ Suitable for chipping such as slabs, edgings, veneer cores,etc.

2/ Not suitable for chipping such as sawdust, veneer clippings, etc.

3/ Does not include bark at pulpmills.

4/ Livestock bedding, mulch, small dimension, and specialty items.

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Primary forest products industry and timber use, Indiana, 1980. Resour. Bull. NC-65. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 25 p.

Discusses recent Indiana forest industry trends; timber removals for industrial roundwood in 1980; and production and receipts of saw logs, pulpwood, veneer logs, and other industrial roundwood products. Reports on associated primary mill wood and bark residue and the disposition of mill residue.

KEY WORDS: Saw logs, pulpwood, veneer logs, production, mill residue, timber removals.

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